



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/672,363

09/26/2003

John William Miller

06459 USA

3026

23543 7590 09/29/2010  
AIR PRODUCTS AND CHEMICALS, INC.  
PATENT DEPARTMENT  
7201 HAMILTON BOULEVARD  
ALLENTOWN, PA 181951501

EXAMINER

COONEY, JOHN M

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

09/29/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* JOHN WILLIAM MILLER

---

Appeal 2009-013405  
Application 10/672,363  
Technology Center 1700

---

Before CATHERINE Q. TIMM, BEVERLY A. FRANKLIN, and  
KAREN M. HASTINGS, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

I. STATEMENT OF CASE

Appellant appeals under 35 U.S.C. § 134 from the Examiner's decision to reject claims 1, 6-17, and 21-30 under 35 U.S.C. § 103(a) over Blum (US 4,581,432, issued Apr. 8, 1986) in view of Bogdan (US

---

<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

6,086,788, issued Jul. 11, 2000).<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellant's invention relates to compositions and processes for making polyurethane foams (Spec. ¶ [0001]). The composition includes a compound, such as ethylene glycol monobutyl ether, that is characterized as a blowing agent enhancer (i.e., said to enhance the effectiveness of the hydrohalocarbon blowing agent also included in the composition). Appellant claims compositions including the blowing agent and enhancer along with a polyol and/or polyisocyanate (*see* independent claims 1, 15, 22, and 24), a method of making a polyurethane foam by combining a polyol and a polyisocyanate in the presence of the blowing agent and blowing agent enhancer (claim 16), and the resulting polyurethane product (claim 21).

All of the claims except for claim 22 require that the blowing agent enhancer be present in an amount of at least 4 pphp (parts by weight per 100 parts polyol).

## II. DISCUSSION

The dispute in this appeal centers on the concentration requirement of the claims. The Examiner finds that Blum teaches including ethylene glycol monobutyl ether, one of Appellant's claimed "blowing agent enhancers," but acknowledges that Blum does not teach including it in concentrations within the claimed range (Ans. 3). The Examiner, however, further finds that only

---

<sup>2</sup> The Examiner maintains a rejection of claims 1, 6-17, and 21-30 on the ground of nonstatutory obviousness-type double patenting (Ans. 2). As this rejection has not been presented for our review, we do not reach it (Br. 8). We note that Appellant has indicated an intent to file a terminal disclaimer to obviate this rejection (Br. 4).

routine experimentation is required for discovering the optimum value of the concentration, and bases the obviousness conclusion on this finding (Ans. 3-6). Appellant contends that the Examiner has failed to establish that one of ordinary skill in the art would have been led to include at least 4 pphp of ethylene glycol monobutyl ether in compositions suggested by that reference (Br. 10-11).

The issue is: Does the evidence support a prima facie case of obviousness such that the burden has been shifted to Appellant to show non-obviousness by, for instance, showing the claimed range is critical for obtaining unexpected results?

We answer this question in the affirmative.

There is no dispute that, according to Examples 3 and 5, Blum adds ethylene glycol monobutyl ether to dissolve a catalyst (Examples 3 and 5; *Compare* Br. 9; Ans. 3-4). Nor is there any dispute that the amounts used in Examples 3 and 5 (1.2 pphp in Example 3 and 3.2 pphp in Example 5, according to Appellant) are not within the claimed range of at least 4 pphp (*Compare* Br. 10 with Ans. 5-6).

As pointed out by the Examiner, Examples 3 and 5 evince that the amount of ethylene glycol monobutyl ether used is dependent on the amount of catalyst (triethylenediamine) to be dissolved (Ans. 5-6). It is apparent that as the amount of catalyst increases, the amount of ethylene glycol monobutyl ether needed to dissolve the catalyst will also increase. But the question remains, as correctly identified by Appellant: would one of ordinary skill in the art have been led to include at least 4 pphp of the ethylene glycol monobutyl ether in a composition suggested by Blum? (Br. 11.)

Blum teaches the type of variation leading one of ordinary skill in the art to perform routine experimentation to determine the workable or optimal concentration of the ethylene glycol monobutyl ether catalyst solvent. Example 3 teaches dissolving 1 part of triethylenediamine catalyst in 2 parts of ethylene glycol monobutyl ether. Example 5 indicates that a greater amount of catalyst, 1.5 parts triethylenediamine, requires a higher amount of the ether, i.e., 4.5 parts. We also point out that the pphp value (Appellant's mode of measuring concentration) is dependent further on the amount of polyol in the composition, and tertiary amine catalysts, such as triethylenediamine, may be present in Blum in amounts up to 5 parts (Blum, col. 12, ll. 39-40). These facts support a determination that one of ordinary skill in the art would have been led to add at least 4 pphp ethylene glycol monobutyl ether to dissolve the catalyst; particularly, when adding the higher amounts of catalyst suggested by Blum's broader disclosure. Thus, the evidence is sufficient to support a prima facie case of obviousness under the facts of this case. *See In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) (discussing cases with concentration and variable differences, and stating that "in such a situation, the applicant must show that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range.").

Appellant has advanced a thoughtful and well crafted argument. However, after reviewing all the evidence on record, we determine that the evidence is sufficient to support a prima facie case of obviousness such that the burden has shifted to Appellant to provide evidence sufficient to show non-obviousness by, for instance, showing the claimed range achieves unexpected results. There is no such evidence relied upon in this appeal.

We further note that claim 22 does not require that the blowing agent enhancer be present in the amount of at least 4 pphp. Therefore, even if the evidence supported Appellant's contention, we could not say that Appellant has sufficiently overcome the Examiner's rejection of this claim or claims 23 and 29, which depend from it.

### III. CONCLUSION

On the record before us, we sustain the rejection maintained by the Examiner.

### IV. DECISION

The decision of the Examiner is affirmed.

### V. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

cam

AIR PRODUCTS AND CHEMICALS, INC.  
PATENT DEPARTMENT  
7201 HAMILTON BOULEVARD  
ALLENTOWN PA 18195-1501